

REMARKS

Claims 1-25 are pending in the application. Claims 24 and 25 have been withdrawn due to restriction. Claims 1-23 have been rejected under 35 U.S.C. § 103(a). New claims 26-33 have been added by this amendment because the applicants believe that the invention is not claimed as broadly as possible.

Rejections under 35 U.S.C. § 103(a)

Claims 1-23 have been rejected under 35 U.S.C. §103(a) as being unpatentable over BIO-RAD, Life Science Research Products Catalog (1993), pages 57 and 60-63 (hereinafter "BIO-RAD"). Applicants traverse this rejection. In order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference must teach or suggest all the claim limitations. MPEP §2143.

The third criteria listed above states that the prior art references must teach or suggest all the claim limitations in order to establish a *prima facie* case of obviousness. MPEP §2143.

Applicants believe that this criteria is not met and maintain that the prior art references do not disclose, teach or suggest all of the claim limitations of independent claim 1 for the following reasons. Applicants have amended claim 1 to clarify the invention. In particular, claim 1 now recites that at least two of the bearing surfaces are adapted to seat on at least two of the collection tubes, each of the collection tubes having differently-sized openings. No new matter has been added. (See FIGs. 4 & 5.) The prior art does not disclose, teach or suggest this claim limitation.

The Office Action states that "[t]he column described by BIO-RAD contains bearing surfaces adaptable to seat of collection tubes of different sizes." (Paper No. 11, pg 6) However, nothing in BIO-RAD discloses, teaches or suggests that the products in BIO-RAD have bearing surfaces

and that such bearing surfaces are adapted to mate with centrifuge tubes of different sizes as claimed. Applicants respectfully request support for this assertion.

One of the factual inquiries that are applied in establishing a background for obviousness is ascertaining the differences between the prior art and the claims at issue. Ascertaining the differences between the prior art and the claims at issue, however, requires considering both the invention and the prior art references as a whole. MPEP §2141.02 (emphasis added). The present invention and references must be considered as a whole and when so examined, it is clear that the BIO-RAD product is not adapted to mate with collection tubes of different sizes. Just because there is a reduced diameter in the BIO-RAD product and a collection tube somewhere, does not mean that it is obvious or ok to mate them without regard to rendering the products inoperable for their respective purposes. Doing so would be the application of hindsight and improper. For these reasons, the proposed modification does not rise to a reasonable expectation of success as required by the second criterion for establishing a *prima facie* case of obviousness.

The first criterion requires that there be some suggestion or motivation to modify or combine the reference teachings. MPEP §2143. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant's discourse. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991). The prior art must suggest the desirability of the claimed invention. MPEP §2143.01. There is nothing BIO-RAD or in the knowledge generally available to one of ordinary skill in the art at the time the invention was made that would lead one to make the modification proposed by the Office. As stated in the specification, it is desirable to elute the nucleic acids from the filter column directly into a smaller tube. This advantage is not appreciated in the prior art or by one of ordinary skill in the art at the time that the invention was made. This advantage allows one to proceed to the next reaction step in the small tube rather than having to pipette out of the large tube. Use of a pipette is undesirable as it introduces the risk of loss of samples as well as contamination of the sample. Furthermore, another advantage is that the present invention overcomes problems associated with using a smaller filter column designed to fit a smaller

collection tube. For example, a smaller filter column limits the amount of wash solution that can be passed through the column with each wash. This limitation necessitates additional wash steps and increased handling of the filter column and microcentrifuge tube. For these reasons, the particular configuration of the present invention is significant as seen in affording the above-mentioned advantages. Therefore, this invention is not obviousness.

Furthermore, the Office states that it would have been obvious to modify the teaching of the BIO-RAD regarding the placement of the filter within the second body as opposed to the third body. Applicants disagree and maintain that the filter placement and its associated advantages are non-obvious. For example, the present invention discloses and claims a filter column that allows for "varying placement of a filter...within a passageway". Specification, paragraph 0035. In particular, paragraph 0035 of the specification reads as follows:

For example, placement of a filter in a bottom 23 of the second body portion 5 permits the filter column 1 to provide a certain volume capacity. The volume capacity of the filter column 1 can increase by changing the location of the filter to a bottom 25 of the third body portion 7. Accordingly, the same filter column 1 body may be used for varying application. To maximize the volume of fluid that can be added to a filter column of the present invention, a filter can be located in the lowest chamber. Moreover, locating the filter towards a middle chamber reduces the volume of fluid that may be added but permit a larger filter surface area as the diameter of the middle chamber may be greater than the diameter of a lower chamber.

The advantages recited therein are not appreciated, disclosed, taught or suggested in the prior art or known to one of ordinary skill in the art at the time the invention was made. Therefore, the invention as claimed is not obvious.

With respect to the claimed dimensions, the prior art does not disclose, teach or suggest the claimed dimensions because BIO-RAD does not appreciate the invention and its associated advantages. The claimed dimensions are significant because the filter column is designed such that it mates with various sizes of standardized microcentrifuge tubes that are now currently in large-scale production. This sizing allows for users to work with existing tubes without

necessitating the purchase or use of specialized microcentrifuge tubes. Other dimensions are significant as claimed because the filter column and microcentrifuge tube combination when mated together must be able to fit inside standard centrifuge apparatuses. The prior art does not appreciate, disclose, suggest or teach this advantage.

Yet another aspect of the present invention that is not appreciated by the prior art is that the filter column, when mated with different collection tubes, is not only designed to fit inside centrifuge apparatuses, but also is capable of withstanding the forces associated with centrifugation without the two pieces separating. This aspect of the invention is not disclosed, taught or suggested in the prior.

In addition, the Office states that BIO-RAD does not teach a column comprising a fourth section. The reason for this is clear. It is because BIO-RAD does not teach or suggest using a single filter column with more than one centrifuge tube as disclosed in the present invention. A fourth section permits a centrifuge tube of yet another size to be attached to the filter column of the present invention. Having a fourth section, for example, would permit even smaller tubes to be used to collect even smaller elution volumes. To say that it is obvious to modify BIO-RAD to have a fourth section is a leap that is not obvious to make because BIO-RAD does not even teach or suggest mating a filter column with more than one tube having differently-sized openings as claimed. For this reason, this aspect of the invention is also non-obvious.

Furthermore, the Office states that BIO-RAD does not teach a column comprising vents. The vents permit placement of a lid on the filter column without increasing the pressure within the passageway which would thereby cause sample material to be forced out of the filter column. This aspect is not disclosed, taught or suggested in the prior art and therefore, not obvious.

Also, the prior art does not disclose deformable ribs protruding from the outside surface of the body. The deformable ribs 57 assist in securing the filter column 42 in a slightly larger diameter tube (e.g., a 2.0 mL tube) by increasing a diameter of the filter column 42.

Accordingly, these ribs deform upon insertion of the filter column 42 into a tube having a diameter slightly larger than the corresponding body portion upon which the ribs 57 are situated.

The number and design of the deformation ribs 57 may vary as needed, however, the ribs should be placed on a portion of the filter column that accommodates the varying sizes of tubes. The invention also contemplates deformation ribs 57 which are either plastically or elastically deformable, or exhibit a limited degree of plastic or elastic deformation. This aspect of the invention assists in creating a column/tube combination that is suitable for use in centrifuge apparatuses. This aspect is not disclosed, taught or suggested in the prior art nor obvious to one of ordinary skill in the art at the time the invention was made.

In view of the foregoing remarks, applicants respectfully submit that claim 1 and its dependent claims as well as newly added claims 26-33 are nonobvious. For these reasons, applicants believe that the application is in a condition for allowance, and action toward that end is earnestly solicited.

In the unlikely event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, Applicant petitions for any required relief including extensions of time.

Respectfully submitted,

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